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UNITED STATES DEPARTMENT OF AGRICULTURE

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WITH UNCLE SAM'S NATURALISTS Friday, January 13, 1933

FOR BROADCAST USE ONLY

Reading Time: 10 Minutes.

ANNOUNCEMENT: Every other Friday at this time the Naturalists in the United States Biological Survey take us into the Great Out-of-Doors to see how Uncle Sam is protecting our wild bird and animal life. Today, we visit the big elk herd at Jackson Hole, Wyoming.

--oOo--

I expect most of you have never seen an elk.

But you will see plenty of them today.

We are going into the Jackson Hole country where nearly 20,000 elk are spending the winter.

As you will see, the elk look very much like ordinary deer. Only, the elk--- or "wop-i-ti" (wapiti), as the Shawnees called them--- are larger. They are the largest deer in North America except the moose.

You'll notice the stags still wear their big crown of antlers.

They will keep those antlers all through the winter. Then, along about the middle of March, the antlers break off almost flush with the stag's head. But right underneath the old antlers, you see a little bony base about an inch or so long. Within a few days, those little stubs begin to grow. In a month, they are a foot high. By September the new headgear is finished. The stags are then ready to battle for the leadership of the herd.

No doubt you have read about those famous battles.

Two stags come charging down upon each other through the woods. One will likely be an old stag. He roars out his challenge to all comers in a deep bugling voice. The other may be but a youngster. His voice is nothing more than a mere whistle or squeal.

When two stags meet, they rush at each other with lowered heads. The air rings with the clash of antlers. Perhaps they draw apart and attack each other again and again. But, finally, the strong, springy antlers may yield a little under a terrific onset, and spring together locked. The stags may be able to free themselves. But occasionally they tug, and push, and wrestle until they fall exhausted and slowly die of starvation.

Travelers in the early days tell of many a duel of that kind in the forest. But, over most of the country, the bugling of the mighty elk stag is silenced. The elk went the way of the passenger pigeon and buffalo.

As that great naturalist, Ernest Thompson Seton, says:

"There are few stories of blood lust more disgusting than that detailing the slaughter of the great elk bands. The sea-otter were hunted down because their robes were valuable, and there was no avoidable waste. The deer of New England were killed off for the meat. But the wholesale massacre of the elk, like that of the buffalo, was carried on for the joy of seeing the great creatures fall in dying agony; and, in later years, by tusk-hunters who were too lazy to be hide-hunters.

"It was easier to kill elk than deer because they were less shy. They betrayed their whereabouts by whistling. They were easier to hit, and, in much of the range, could be pursued on horseback. They were more easily killed than buffalo because, when alarmed, they ran not far; and one shot, well placed, would down the elk. Thus, of the three (the deer, buffalo, and elk), the elk was the first to disappear from a given locality."

That slaughter went on year after year. The elk vanished from one region after another. Finally, the animal that had once roved the continent 10 million strong dwindled away until it numbered only a few thousand.

But, along about 1895, folks here and there about the country began to rise in opposition. They remembered the fate of the buffalo. The elk was disappearing in the same way.

Game protective societies put through laws to curb hunting. They also started moves to restock the old ranges.

But, hunting laws and re-stocking programs weren't enough. Our elk herds also needed protection from the man-made civilization that was closing in upon them.

That need became very apparent during the years 1908- to 1911 in the Jackson Hole region of Wyoming.

As I told you, Jackson Hole is what you might call a winter colony. The elk spend the summer and fall browsing around over the mountains. But as winter comes along, they gradually move southward. By the time the snow gets deep on the mountains, they find most of the elk herded together in the sheltered valleys.

In the days when Jackson Hole was more or less a wilderness, the elk found enough forage in the valleys to carry them through the winter. But man gradually edged in on their haven. His cattle ate up much of the elk's winter food supply. The elk turned to the willows and other shrubs. They soon got so hungry they ate the smaller twigs---and, later, even the larger branches and bark. But, as you can well imagine, the elk didn't get much nourishment out of dry wood. Moreover, the woody fiber was actually injurious, especially to the calves. Sometimes they were able to break into a rancher's haystack. But, when they found the haystack securely fenced, theyhung around the outside and often died there by the dozens.

During the winter of 1910-11, about two thousand to 25 hundred elk in the Jackson Hole region died of starvation. Probably three-fourths of that number were calves.

Well, that wholesale starvation---and similar starvation in previous years---brought action. In response to requests from folks in the Jackson

"There are few [illegible] of [illegible] just more dignified than that [illegible]-ing the [illegible] most all [illegible]. The [illegible] were hunted down [illegible] [illegible] [illegible], [illegible] we [illegible] [illegible]. The [illegible] [illegible] [illegible] [illegible]. But the [illegible] [illegible] of [illegible] [illegible] the [illegible] or for the [illegible] [illegible] the [illegible] in lying [illegible] [illegible] means, by [illegible]-hunters who [illegible] [illegible] [illegible].

[illegible] to [illegible] than [illegible] they were [illegible]. [illegible] [illegible] [illegible] [illegible] [illegible]. They were easier [illegible], [illegible] [illegible] [illegible] [illegible]

Hole territory the state of Wyoming brought some hay for the elk. Wyoming also asked for help from the Federal government and about three years later the government established the Elk Refuge near Jackson. Since 1911, in fact the state and Federal governments have been buying feed to carry the Jackson Hole herd through the winter.

But, now, that winter feeding brings up another problem.

During the early days, the herd from year to year was about the same size. Old Mother Nature kept the herd at a size she could conveniently feed and handle.

But, when Man pushed into the elk country, he upset the balance. When he began to take the lion's share of the feed, he had to ration out a little hay to the elk or the elk would starve out altogether. He also had to regulate hunting. But just how far should he go in his protection? If he nursed the elk along too far, the herds would increase. Year by year, they would demand more winter feeding. But, more than that, they would soon become so plentiful they would destroy the ranges---and they would die off from disease. They would thus defeat the purpose of the protection.

So Man had to set about to find a way to limit the herd to the carrying capacity of the summer range---in other words, to restore Old Mother Nature's balance that he upset with his farms, and fences, and cattle.

Dr. W.B. Bell, of the Biological Survey, tells me the men who have studied the elk in the Jackson Hole region have set its carrying capacity at about 20 thousand head. From time to time, with the help of the Forest Service and the State, the Biological Survey men estimated the number of elk wintering in the region as a guide to the State in fixing hunting regulations. Last year, they counted the elk from an airplane. Their count showed 19,855 head.

The men in the Biological Survey are also studying the elk's breeding habits, and diseases, and insect pests, and enemies.

One of the biologists---O. J. Murie---has, during the past five years, virtually lived with the elk. He has a home in the Jackson Hole region and camps around over the range to study the elk in their natural conditions.

Murie's findings---and the findings of the other biologists---will enable us to save one of our finest wild animals from extinction.

Those findings will also protect an important industry. For, in the Jackson Hole country, the elk industry is more important than the livestock industry or any other type of farming. Many folks in that region get a good part---or all--- of their income from the thousands of tourists and hunters who come to see or to hunt the elk. Those folks furnish the hunters and tourists supplies and horses, and act as guides. The elk herd also helps the market for hay and brings in considerable revenue from hunting licenses.

So, the elk industry really means as much to the Jackson Hole country as does the potato industry to Idaho or Maine, or the citrus industry to California or Florida, or wheat and cotton to the Mid-West.

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ANNOUNCEMENT: And that concludes today's visit with Uncle Sam's Naturalists. The United States Biological Survey will bring us another story about our wild life at this same time two weeks from today.

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WITH UNCLE SAM'S NATURALISTS RELEASE Friday, January 27, 1933.

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Reading Time: 10 Minutes

ANNOUNCEMENT: And now for our visit with Uncle Sam's Naturalists. The Naturalists bring us a story to-day of fur coats, and fur gloves, and fur hats. Not the coats, gloves, and hats you find in the fur shop. These furs still wriggle through the underbrush and paddle through ponds and streams.

--ooOoo--

Did you ever see a muskrat? --

If you have, maybe you weren't too favorably impressed with its looks. Perhaps it reminded you of the common brown rat you see around your garage and cellar.

Well sir, the muskrat as a matter of fact doesn't look much like a common brown rat.

For one thing the muskrat is much bigger--I'd say, about three times as big when full grown. That's one difference.

The muskrat has several other distinguishing features, too. First place, the muskrat has partly webbed hind feet--and feet arranged that they fold flat as it brings them forward in swimming and to cut down the resistance of the water.

The muskrat's tail is shaped for life in the water, too. It's flat and tapering, and makes a fine rudder.

Then there's that glossy coat of overhair with the dense underfur.

That fine waterproof coat of fur is the muskrat's title to fame, as the most important of all our fur-bearing animals.

I know you'll open your eyes when I say that.

What about all the rest of our valuable fur bearers? you ask. What about the silver fox, and the marten, and the fur seal?

Well, the muskrat leads them all. We use more fur of the muskrat than of any other one animal, and the total value of the skins we get from muskrats is greater than the value of those from any other fur animal. Frank G. Ashbrook, of the United States Biological Survey, tells me, that in normal times, we use somewhere around 13 to 14 million muskrat skins a year.

We make the greater part of those muskrat skins into coats.

But, the manufacturers also make another kind of coat. They make a coat they call "Hudson seal." Hudson seal is just muskrat skin clipped and dyed.

Then, we also use muskrat skins for a lot of other odds and ends such as gloves, and hats, and trimmings.

The trade in muskrat fur ordinarily runs into millions of dollars a year.

When muskrat pelts brought a dollar and a half to two dollars apiece, the sales of raw muskrat pelts probably ran from 20 to 30 million dollars. To-day, with muskrat pelts selling for 80 cents, or 60 cents, or even less, the figure would run considerably lower. But trapping and selling muskrat skins is a big business even now.

We get most of our muskrat skins from prefessional trappers.

Many other folks throughout the country also trap muskrats as a kind of side line. Farmers, for instance. Farmers in many sections trap muskrats during the winter months and thus add a few dollars to their income.

Then, we have regular muskrat farms.

But muskrat farms are not like, say, the silver-fox farms. Muskrats don't seem to thrive very well when you pen them up. They don't reproduce satisfactorily--and they fight among themselves and die off. Moreover, you don't get a high enough price from the pelts to pay for the feed, and equipment, and labor.

Folks who run muskrat farms simply set aside and protect marsh areas, and swamps, and ponds, and other places where muskrats naturally live.

You find a number of muskrat farms in Louisiana, and along the Eastern Shore of Maryland, and in New York. These farms do good business in normal times.

But, of course, the muskrat-fur business, like the rest of the fur industry is feeling the effects of low prices.

The fur business in general is one of the first industries to feel the pinch of depression. But Ashbrook tells me part of the trouble with the fur business is of a much more deep-seated nature. Ever since 1917 and 1918, the number of pelts of all kinds taken in this country has been falling off. Right now, we're producing only about half as many pelts as we did a few years ago. Muskrat fur production has fallen off along with the other furs.

You can easily guess why. The story of the fur-bearing animals is the same as the story of much of our other wild life; we've been very thoughtless and short-sighted about the resource.

For one thing, we've gone ahead with our work of clearing and draining marshes and woodland without providing for the birds and animals we routed out.

Then, of course, our hunters have kept a restless finger on the trigger. And our trappers have trapped the woods and marshes too closely.

[illegible]

During the early days when the country was young and heavily wooded, over-trapping hadn't become much of a problem. The muskrat and other fur-bearers increased fast enough to meet the growing demand. But, to-day, the situation is different. We've been crowding and crowding the muskrat just as our pioneer ancestors did the Indian. Equally important, our Twentieth Century trappers like everybody else, have adopted the wholesale idea. In the old days a trapper set maybe a half dozen or dozen traps in a day. But the modern trapper hops in his car and gets around to perhaps a hundred or a hundred and fifty traps. Such efficiency enriches the trapper for a time. But eventually he kills the goose that lays the golden egg.

Of course, a great many States are protecting the muskrat along with other wild life. Forty-one of the 47 muskrat States now protect the musrkat by regulating the trapping season. Some States limit the season to three months--others to longer or shorter periods.

But, even after a State starts in seriously to protect its muskrats, it often must work more or less in the dark. The State naturally wants to protect the muskrat during the breeding season. But just what are the breeding habits of the muskrat? Some naturalists and trappers have their ideas. And perhaps they are right. But mistakes are sometimes made in such matters.

For instance, Ashbrook mentioned one mistake made with regard to the breeding habits of that valuable little fur bearer--the marten.

Most folks--and among them some wild-life protectors--used to think martens bred during January, February, and the early part of March. When they kept the martens in captivity and managed them on that theory, the martens never had any young. But many of the wild-life protectors and fur farmers clung to this notion just the same.

But, when Ashbrook and his men made a careful study of the breeding habits of martens, they found the old notions all wrong. Martens mate, not during January, February, and March, but during the summer months--from the middle of July on up through the first part of August. What's more, the time between mating and time of birth is not 60 to 102 days but 259 to 275 days. Fancy trying to protect a wild animal when you know little more about it than folks used to know about the marten.

Ashbrook and his men hope to get the same kind of accurate, scientific facts about the habits of the muskrat and other fur-bearing animals as they did about the marten. They are now studying the breeding habits, and other habits, of the muskrat in cooperation with the University of Maryland and the Maryland Conservation Commission. There is much yet to be learned about when muskrats mate, and how long the females carry their young, and how many litters they produce a year. Until we know more of those facts, we shall not know how best to protect the muskrats. So Ashbrook and his men are after the facts.

Ashbrook says, "We are trying to get the facts about the muskrat industry just as our farm specialists have gathered their facts about other important livestock industries-facts about cattle, and sheep, and hogs, and poultry."

ANNOUNCEMENT: And that concludes to-day's visit with Uncle Sam's Naturalists. The United States Biological Survey will bring us another story about our wild life at this same time two weeks from to-day.

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WITH UNCLE SAM'S NATURALISTS RELEASE Friday, February 10, 1933

FOR BROADCAST USE ONLY

Reading Time: 10 Minutes

ANNOUNCEMENT: Join with us all you friends of the birds and beasts---and you lovers of justice. Uncle Sam's Naturalists are all set to stage a trial for us today---a trial in which we'll hear serious charges against some of the furred and feathered folk of the Great Out-of-Doors---and also testimony in their defense.

--o--

You've all heard the old saying, "Tell me what you eat and I'll tell you what you are."

Well, we seem to take that old adage as the foundation of our entire system of justice for our bird and animal friends. One particular bird may feed on some other form of wild life that we consider especially desirable---say, a fish---a trout. The bird may not eat trout as a regular diet---only once in a while. Nevertheless, we say that bird is destroying a valuable game fish; we are likely to outlaw him as vermin---as something we must kill and destroy.

You realize how much of our wild like we've thoughtlessly condemned to the so-called "vermin" class when we bring a few of our furred and feathered friends before the "court" and hear the many charges brought against them.

Suppose we summon first that beautiful bird the Great Blue Heron.

The heron comes before the court gulping down a hasty lunch of fish. You see enough of the fish to realize it is a trout.

One witness---an ardent angler---growls, "I told you so. ---Plain as day. We've caught a heron in the act---a trout in his bill. What more evidence do you want? We've got to shoot off a few of these herons to save our fish."

Without stopping to defend the heron---or to comment on the charges---we call another "accused" from the wilds---this time the crafty fox.

Br'er fox comes before the court under a cloud. Many folks have already formed their opinions as to his guilt. You notice a tell-tale feather dangling from the corner of his jaw. The feather turns out to be the feather of a quail. That feather strengthens the case against the fox; he is an enemy of our bird life. Even some of his former friends begin to think we had better comdemn the fox to death.

Convincing evidence, perhaps. But let's pass on. Next comes the weasel.

Here indeed is "Public Enemy No. 1." ---Sly, bold, bloodthirsty. ---Cousin of the mink and polecat.

The entire courtroom glares with hostility at the weasel as it glides quickly along on its short, stubby legs. One spectator remembers a story her grandmother told her years ago. Just after the grandmother set up housekeeping, a weasel got into her henhouse one night and killed 17 of her prize Plymouth Rocks. Other spectators recall similar stories. No question as to the weasel's guilt. You, the jury, may be ready to declare Mr. Weasel guilty, along with the other birds and animals against which the evidence seems to be strong.

We might go on for the rest of the day, calling one bird and animal after another before the court. With our opinions already formed, we would brand them, one after another, as "vermin." By the time we had gone through the entire docket, the clerk's record would probably show about 90 per cent of our wild life listed under the heading of "vermin"---wild life that is considered harmful---wild life to be destroyed.

Something is obviously wrong.

We've slated 90 per cent of our wild life for extermination. Do the facts in the case warrant any such verdict? Did we arrive at our decision fairly, impartially, and scientifically?

Maybe we were not careful enough in weighing the evidence. We accepted opinions, and prejudices, and circumstantial evidence. But we had no expert testimony---no testimony from a witness who had made a careful study of the habits of our wild life and of their relations to one another. Let's hear an expert witness before we pronounce sentence.

We have such a witness in W. L. McAtee, of the U. S. Biological Survey.

McAtee has spent years and years studying the food habits and other habits of much of our wild life. He has been gathering the inside facts we need if we are to draw up sensible game laws and to work out a sane conservation program.

What does McAtee say about the fox, for example? Is the fox an enemy of bird life?

McAtee reports on a special study of that question in Virginia.

Many folks in Virginia, and throughout the Southeastern States, claim that foxes kill so many quail that we need to kill off the foxes. They pointed to the scarcity of the bobwhite in some sections---also to cases where they had surprised a fox as it finished up a fine meal of quail.

But, when McAtee, and the Virginia Game Commission, began to check up on Br'er Fox, they found he wasn't such a bad character after all. In fact, when they examined the stomachs of 50 foxes, they found quail in only one. Those 50 foxes had been living mainly on rabbits. McAtee says, "Of course, we'll have to check up on a great many more foxes before we can say definitely just how much quail the foxes are eating. But, from our study of those 50 fox stomachs, we can not condemn foxes as a menace to quail---at least, not in Virginia. Neither can we condemn the fox family as a whole as a threat to any other kind of bird or animal life. The worst we can say is that Virginians may have to kill off the occasional fox that gets too much interested in chicken coops or develops too much of an appetite for such food as quail."

[illegible]

[illegible]

[illegible]

Well, McAtee's testimony lifts some of the guilt from the shoulders of the fox. But what about the heron? You remember we condemned the heron as vermin because we found it eating one trout.

True enough! Perhaps the heron DOES pick up a trout now and then. But let's be fair to that beautiful blue bird of the rivers and marshes. McAtee tells us that trout is not all, or even a large part, of the heron's diet. Just watch one of those long-legged birds as it wades around in the shallow water, thrusting its long, sharp bill beneath the surface after a fleeting streak of silver. More often than not, it will come up with a "coarse" fish; that is, some fish other than those relished by man as game fishes. The coarse fishes are the trout's and other game fishes' worst enemies. They are the biggest obstacle we meet when we try to restock our lakes and streams. Then, as the heron steps out of the water onto the bank, you'll see it snatch up many insects, mice, pocket gophers, and other creatures. So, we really find no reason to regard the heron as an enemy of the trout or of any other kind of wild life.

Likewise, as we get expert testimony about one after another of our so-called vermin, we find little or no evidence supporting the charge that they are destructive always and everywhere. It all depends on the local conditions.

For instance, Doctor Dearborn, of the University of Michigan, has been looking into the charges against some of Michigan's leading fur bearers. I'll summarize for you what he has to say about a few of them.

Take the raccoon, for example. The 'coon tastes a little bit of everything at one time or another. But more than half its diet is made up of crawfish. It also eats beetles and grasshoppers, acorns, grain, and fruit.

Next, the stealthy, bloodthirsty wildcat. Certainly here we'll find a true enemy of our wild life. But no. These wildcats in Michigan make about 90 per cent of their meals off of the plentiful, fast-breeding rabbit. Of course they also get a few young deer and some other small game. In some parts of the country wild cats do a lot of damage to livestock and poultry. But you can always tell when this is true. And just because the animal sometimes does damage this way in some localities you shouldn't think that it ought to be exterminated everywhere.

Well, then, how about the weasel? Weasels undoubtedly like chickens. Leave the henhouse door open some night and a weasel may snatch a pullet or so off the roost. The story of that one crime will live to shame the whole race of weasels for all time. But, away from the barnyard the weasel is a most useful little helper in keeping down field mice.

In a similar way, Dearborn clears the reputation of the skunk and badger in Michigan. And Mr. McAtee tells me that what Dearborn found out in Michigan is true of these animals in most other sections of the country. Skunks live pretty largely on insects; they do not bother game birds and bird eggs to any great extent. Badgers live mostly on mice, with some rabbits and ground squirrels for variety.

All of the so-called vermin that Dearborn studied, except the 'possum and mink, might well be called beneficial in Michigan.

So, in that section of the country when somebody actually made a study he found the charges against our furred and feathered friends dropping away one by one. There are some sections, of course, where some animals are injurious, and in these sections control measures are sometimes necessary. But local conditions should always determine whether or not you should drive out the animal. Don't think that any one animal should be killed because of its name. Find out all you can about what it does.

McAtee and Dearborn ask us to reconsider some of our old notions about the herons, and foxes, and other wild life for still other reasons.

Foxes, and muskrats, and raccoons, and other fur bearers bring millions of dollars every year to farmers, and trappers, and others. That's one reason.

Hikers and vacationists get just as much enjoyment from seeing a great blue heron wading in a pond or a ball of fur scurrying through the underbrush as the angler does from the pull of a trout on his line, or the sportsmen in hunting quail. There's a second reason.

But we have a third and still more important reason. Old Mother Nature has worked out a neat little scheme for the furred and feathered folk to live alongside each other quite successfully. One member of the family preys on another and kills off the weak and diseased, and keeps any one kind of wild life from getting too numerous. When we begin to tinker with Nature's plan, and kill off all of any one kind of wild life and protect all of another, we cause all kinds of trouble. We've found that out from experience.

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ANNOUNCEMENT: And that concludes today's visit with Uncle Sam's Naturalists. We will hear another story from the United States Biological Survey about our wild life at this same time two weeks from today.

UNITED STATES DEPARTMENT OF AGRICULTURE

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WITH UNCLE SAM'S NATURALISTS RELEASE Friday, February 24, 1933

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Reading Time: 10 Minutes

ANNOUNCEMENT: And here is Uncle Sam's Naturalist, ready to take us on another trip into the Great Out-o'-Doors. Today, we'll visit the big home for our furred and feathered folk of wilds along the upper stretches of the Mississippi. We make this trip through the courtesy of the United States Biological Survey.

-ooOoo-

Better bring your Seven-League Boots along with you today.

You may need them to cover the long, long stretch of country that lies ahead of us.

We're starting at Davenport, Iowa. From Davenport, we hit up the Mississippi through the Upper Mississippi River Wild Life and Fish Refuge for a distance of approximately 284 miles -- yes sir, all the way up to Wabasha, Minnesota. As we move along, we'll hop back and forth from one side of the river to the other to set our feet down in four different states -- Iowa, Illinois, Minnesota, and Wisconsin.

But be careful where you hop with those big boots or you may hop clear outside of the refuge. For, you see, this refuge is merely a fringe along the river. It ranges from two miles wide to five miles.

That little ribbon of bottomland, and islands, and marshes, and lakes is what you might call the Mississippi's elbow room. Every spring, Ole Man River swells up his chest and comes rollin' along southward in a big huff, sweeping aside everything that stands in his way. Our little stretch of refuge land lies right in his path. Any farm or business you might try to locate there would always be in danger of flooding.

So, some of the friends of our wild life said, "Why not keep that bottomland in its natural condition? Those thickets, and marshes, and lakes make a fine home for wild birds and animals, and fish and other water-folk. All kinds of trees, and wild flowers, and water plants in there, too. They will be interesting to nature lovers."

Well, Congress thought that was a good idea. So, in 1924 it set aside that little strip of overflow land along the river as a wild-life and fish refuge.

Incidentally, the land has a double purpose. That particular stretch of the Mississippi lies on one of the important flight routes of our migratory birds. So, it's not only a refuge for the native wild life, but also a link in our nation-wide system of stop-overs for ducks, and geese, and other birds while they're on their way north or south. They can stop over there long enough to refuel and rest.

We might halt long enough in our journey up the river to see some of those air tourists -- and also some of the stay-at-homes.

Lots of mallards there, you see.

Notice the glistening green heads bobbing around there on the water -- and the white collars.

Scaups, too. Or maybe you call them bluebills, or broadbills, or blackheads.

We may see a few wood ducks, and teal, and pintails, and goldeneyes as we move along, too.

But look over there on the beach of that lake just ahead of us.

Shorebirds of some kind wading around there.

They look like snipe. I bet the fellow who went snipe hunting, and got left to spend the night in the hills thinks that snipe are a fake. But there are two snipe as big as life, poking their big long bills into the mud after worms and larvae.

Probably some sandpipers, and woodcock, and plovers, and yellowlegs in the neighborhood, too. I understand those birds also pass along this way and loaf around here for a time.

But, look out ----- What's that?

Well sir, did you see that flock of quail shoot up out of the grass there and whizz right up past my nose? Almost scared me to death. I thought my time had come for sure.

We ought to see a lot of other game birds up through here, too -- maybe some pheasants, and prairie chickens, and ruffed grouse.

But we haven't seen a single animal in all this time, have we?

Well, just wait. You'll see plenty before long. These bottomland meadows and patches of woodland are literally alive with fur-bearers of this and that kind.

What did I tell you! Look at the rabbit scampering into that pile of brush. Likely something chasing it.

Sure enough! A fox right behind it.

We'll likely see more foxes, too -- and raccoons -- and even wolves.

And if you got to looking around some of those hollow trees, you'd probably also get a glimpse of some squirrels.

But let's hurry along. I have a surprise for you.

See those mound-like affairs sticking up out of that stream just ahead of us? Know what they are?

Yes, you're right. Beaver lodges.

The wild life men of the Biological Survey brought a colony of beavers in here four years ago as an experiment. And from all appearances, that experiment worked. The original colony of beavers has increased to almost a hundred. The refuge rangers ran onto six new colonies just last fall. At one point, they found the beavers had built a dam and backed water up a stream for nearly two miles. That dam not only makes a home for the beavers but also makes the stream more livable and home-like for muskrats, ducks, and other wild life.

Well, you begin to see we have quite a family of wild folk here in our Upper Mississippi River Wild Life and Fish Refuge. But that's only because we protect them.

Just as fast as we bring new areas of land and water into the refuge, we put them under strict regulation. Of course, that doesn't mean we shut folks out of the refuge entirely. Ray C. Steele, the superintendent, tells me you can take fish, and mussels, and other kinds of water life in most parts of the refuge so long as you observe the State laws. You also can go into certain parts of the refuge in the fall to hunt ducks, and geese, and other waterfowl. Moreover, folks in the neighborhood of the refuge trap muskrats and minks. But, of course, all of that fishing, and hunting, and trapping is regulated very closely by the game officials.

The game officials also protect the wild life from starvation and fire.

In winter, when the northern stretches of the refuge are covered with a heavy blanket of snow, the Biological Survey rangers put out small hoppers of feed for the pheasants, and quail, and other upland birds. They also plant small patches of corn and buckwheat and let it stand as winter food for the birds.

Our rangers are also planting trees in the refuge. Not long ago, they put in about 600 food-producing trees near McGregor, Iowa. Those trees include mulberry, and wild plum, and wild crab.

But starvation is a small worry compared with fire.

Superintendent Steele tells me the fire hazard has been unusually bad during the past several seasons. With the Mississippi running at a low stage, many of the lakes and marshes have dried up. Those lakes and marshes used to check the spread of fire. But, now, the dry reeds and grasses carry the flames along like tinder.

During the dry seasons, the whole 284-mile stretch of refuge is often little less than a tinder box.

A thoughtless hunter or camper leaves his camp fire unattended -- or forgets to put the fire out with water, or to cover it with dirt before he leaves -- or a careless smoker drops a lighted match, or a cigarette, or a cigar -- or a farmer lets a brush fire get away from him -- or a spark drifts in from a passing train.

Once a fire gets started in those tinder-like leaves and grasses, it snuffs out a lot of wild life and destroys a lot of shelter before you can bring it under control.

During last November and December, the rangers saw hundreds of pheasants, and quail, and other upland birds driven from their homes by fire. Many of the birds fled to safety. But some of them got caught in the flames before they could escape.

You can still see the tell-tale scars of those and other fires as we pass along through the wooded sections.

But we can't look long at these charred and fallen trees. For, in the few moments before we leave the refuge, I want to show you something different. This time, it isn't birds or animals. No, it is some prehistoric mounds. Right where the Wisconsin river flows into the Mississippi, we find about a hundred mounds built by the Indians. Most of them are effigy mounds; that is, they represent such things as the eagle and the bear, which the Indians looked upon as the symbols of strength. Some folks say the Indians built the mounds to commemorate a great battle.

Anyway those mounds are there for you to see when ever you visit our Upper Mississippi River Wild Life and Fish Refuge.

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ANNOUNCEMENT: And that concludes our trip through the Upper Mississippi River Wild Life and Fish Refuge in the company of Uncle Sam's Naturalists. The United States Biological Survey will bring you another story about the Great Out-o'-Doors at this same time two weeks from today.

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

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WITH UNCLE SAM'S NATURALISTS Friday, March 10, 1933.

(FOR BROADCAST USE ONLY.)

Speaking Time: 10 Minutes.

OPENING ANNOUNCEMENT: And now we turn to the Great-Out-of-Doors with Uncle Sam's Naturalists. Today, the bird men in the United States Biological Survey go into a question bothering a great many farmers as well as bird lovers among the city folks. They tell us what you can do with birds that destroy farm crops.

--ooOOOoo--

All in all, farmers and birds get along together pretty well. But here and there some particular bird gets a little too plentiful, or develops too much of an appetite for grain or fruit, and gives some trouble.

Consider the crow. All told, crows do about as much good as harm. They destroy millions of grasshoppers, and caterpillars, and white grubs, and May beetles, and other pests. But crows also have their bad points.

All of you know how crows like corn. At times, they seem to take special delight in following the rows in newly planted fields and pulling up the sprouting seed.

The farmer then gets hopping mad. You can't blame him. And that isn't the crow's only bad habit. As many a farmer can tell you, crows damage or destroy corn and other crops at other seasons, and eat fruit -- and, at times, even swoop down into the poultry yard and snatch up a chicken and carry it off to their young.

How can the farmer prevent such damage? Well, as I talked with W. L. McAtee of the United States Biological Survey, I found that farmers prevent crow damage in various ways.

For example, he told me how farmers protect their seed grain at planting time. Farmers in the North Atlantic States and in the Southeast often treat their seed with coal tar at the rate of a tablespoonful of coal tar to half a bushel of seed. In many cases, this seems to prevent corn-pulling.

Other farmers have tried bribing the crows a bit. They scatter grain around over a field where the corn is just coming up. The crows naturally eat the grain on top of the ground and leave the young shoots undisturbed.

Then, too, farmers have tried any number of ways of scaring crows. They sometimes put up poles around over their fields, or around the poultry yard, and stretch twine from pole to pole. Again, they hang the body of a dead crow in some prominent place in the field or near the poultry house.

But, at times, none of these methods will work. You may have to shoot, or trap, or poison a few crows before the rest take the hint.

The crow is an old-timer and many farmers have learned pretty well how to get along with the bird. But, now, along comes a new bird problem. As the European starling spreads to the South and West, farmers in many sections have to find some kind of working arrangement with the starling.

I say working arrangement because, in spite of its reputation with some folks, the starling is a very industrious and very helpful worker on the farm. In fact, McAtee tells me the starling is much better about destroying such pests as the clover-leaf weevil, and May beetles, and cutworms, and grasshoppers than many of our protected native birds.

But, of course, in some communities, the starling, like the crow, does quite a bit of damage to crops.

In New York, starlings do considerable damage to cherries.

The Biological Survey sent one of its men to New York to study the starling problem and work out a way to keep the starling in check.

Starlings don't pay much attention to any ordinary kind of scare-crow. The Biological Survey's representative -- Clarence Cottam -- soon found that out. To scare the starlings, your scarecrow must have a good bit of noise and action about it. But even the moving, noisy variety of scarecrow doesn't seem to work for long. The starlings soon get used to it and go right ahead picking their cherries.

Cottam then tried shooting. But he wasn't interested in staging any wholesale killing. He merely shot into the flocks to give the starlings a scare.

Cottam found he could worry the starlings enough to keep them away from the cherries by shooting around over the orchard about an hour to an hour and a half each day during the cherry season.

What works with one kind of bird doesn't always work with another. In California the horned larks scratch, and dust, and feed in bare fields, or in fields with a scattered growth of weeds. From those weed fields, they move over to near-by truck patches for a meal of tender lettuce, or bean, or carrot sprouts. Often, they do a great deal of damage.

Vegetable growers have tried to control the larks in a number of ways. They tried patrolling their fields with guns. But the gun-shooting stunt doesn't work as well on the horned larks in California as it does on starlings in New York. The vegetable fields in the West are often very large. A man may have a field of lettuce covering 80 acres. Fancy trotting over that 80 acres trying to keep up with a flock of horned larks. You'd no sooner scare them from one side of the field until they'd settle on the other side. They'd run the legs off of you, and cost you a lot of money, and get a good mess of your lettuce or beans to boot.

The growers have also tried plowing up the fields adjoining their truck crops and keeping them fallow so as to drive the larks farther from their crops. But that plan isn't always practical.

So, in some cases, the growers have to resort to poisoning. They scatter poisoned lettuce seed along the rows bothered by the larks. And speaking of larks, farmers sometimes have trouble with another so-called lark, though not a closely related bird -- and that's the meadowlark.

In the Carolinas, as in certain other places, meadowlarks often pull up sprouting corn. But the Carolina farmers find if they plant the corn about 4 inches deep the meadowlarks won't take the trouble to dig it out. Four inches may sound a little deep. And it is. But, in light, sandy, soil, the corn seems to come up from that depth without any trouble.

I might go ahead and tell you about a great many other ways to keep birds in check when the birds destroy farm crops. But those examples show you how farmers and bird men are meeting the problem. However, I want to give you one important new idea about bird-control work in general.

You remember, the bird men used to say, "If you have mulberries and other favorite natural foods near your orchard, or truck patch, the birds will tend to eat the mulberries and other natural foods and let your cherries, and strawberries, and other crops alone." But McAtee tells me the work in New York, and California, and other parts of the country has definitely exploded that old idea. The natural foods DO NOT always lessen the damage to cultivated crops. On the contrary, the natural foods may attract more birds to the neighborhood of your orchard, or garden, or berry patch, and increase your losses.

That discovery ties right in with the California vegetable growers' experience with horned larks. The larks do the most damage to vegetables where you find the vegetable fields surrounded by weeds where the larks feed, and dust, and scratch.

So, if the birds get especially troublesome to a certain crop, look around and see if you find natural food or shelter. You may be able to solve the bird problem by doing away with a few things that attract the birds.

When that and other preventive measures fail, a farmer may have to kill a few crows, or starlings, or other birds in self-defense. But bear in mind that a great many of our birds are protected by State or Federal laws, or both. Find out about the law and get a permit before you kill any birds. And if you think you have to kill birds on a large scale, call on the bird men of the United States Biological Survey for help. They will look into your problem and give you the benefit of their experience in solving it.

But just this final word in closing. Remember, birds save us millions and millions of dollars every year through destruction of insect pests. Don't be too hasty to condemn them if they happen to damage a crop here and there. If a valuable cow broke into your garden some night, you wouldn't shoot her; you'd simply try to keep her from repeating the damage. Likewise, if birds damage a crop, don't needlessly kill them. Try to prevent the damage in some other way.

--ooOoo--

CLOSING ANNOUNCEMENT: And that concludes today's visit with Uncle Sam's Naturalists of the United States Biological Survey. We'll have another Naturalist talk for you at this same time two weeks from today.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
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LIBRARY RECEIVED U. S. Department of Agriculture

WITH UNCLE SAM'S NATURALISTS RELEASE March 24, 1933.

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FOR BROADCAST USE ONLY

Reading Time: 10 Minutes.

ANNOUNCEMENT: And now for our visit with Uncle Sam's Naturalists. The Naturalists have a lively debate for us today. They are going to let folks here and there throughout the country argue for and against hawks, and owls, and jays, and sparrows, and some of our other common birds.

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After you hear a few of the arguments for and against some of our common birds, you begin to wish for the sagacity of Solomon.

At least, that's the opinion of W. L. McAtee of the U. S. Biological Survey.

McAtee, as chief of the food habits research division, hears the very same bird both condemned and praised. Some folks claim, "The only good hawk is a dead hawk." But somebody else immediately hops up to retort, "Hawks are very valuable birds." -- And there you are---

I can think of no better way to show you how folks differ in their notions about birds than to quote you a few of the letters that stream across McAtee's desk.

As you might guess, much of the debate centers around hawks and owls.

An Ohio architect writes: "We have a few domesticated pigeons in a dove-cote near our residence....We have been greatly troubled by hawks swooping down and killing them off. Can you tell us any way in which we could successfully combat the hawks?"

But, when city authorities tried to shoot a duck hawk that had been preying on pigeons, a Detroit bird man protested: "The pigeons have increased until the down-town area is little more than a pigeon roost. As for myself, I hope we have bigger and better hawks, as long as they continue to operate here."

Again, on the other side of the hawk question, a Texas farmer writes, "I am very badly in need of a reliable remedy to be used in exterminating hawks."

But a woman in California comes back with the statement, "I would like to see falconry (in other words the art of training hawks to pursue other birds) revived to control trouble with small birds in orchards. The small birds are bad here."

In another letter we find an Arkansas manufacturer sure that "Unless a state-wide campaign is launched against hawks it will be impossible to raise domesticated fowl."

A man in Quebec writes in the hawk's defense and argues (and again I quote), "The writer has kept in close touch with hawks during the past twenty years and thinks these wild and interesting birds should be better protected."

Then comes an Indiana manufacturer and hunting club member who gives his reasons for thinking hawks are harmful. He says, "Hungarian partridges and quail were plentiful until two years ago. We find the remains of birds that have been killed by hawks, we presume, and have many times scared up hawks just after killing the birds....In four or five cases our members have seen hawks catch and kill quail and pheasants. Do you think it would be advisable to offer a bounty for hawks?....If (the county commissioners) will not pay the bounty, our club will."

But along comes another citizen of Indiana---this time a woman---with a very different view. This woman writes, "I am terribly worked up over the move in Indiana to exterminate all hawks and owls as vermin....The Cooper's and the sharp-shinned hawks are the only varieties here which have a bad name, yet all the others are on the killers' list."

Still a third citizen of Indiana says, "I feel that we must make a fight to save our beneficial hawks and owls from becoming extinct, before it is too late."

And so the debate goes. ---Very puzzling, isn't it?

But wait until you hear the heated arguments about that great family of eagles. The controversy over our national emblem and its relatives rages even more bitterly than the fight over hawks.

A resident of Idaho was very much stirred about a bill in Congress to give nation-wide protection to the eagle and complained, "The eagle is one of the most destructive birds that we have in our state. It is very detrimental to our game animals, such as mountain sheep, mountain goats, and also young deer."

But a South Carolina citizen takes the opposite side of the eagle question. He makes the plea, "Can't you get busy and see my friend (the President of the United States) and get our eagle so protected that none will be killed?"

An Oregon woman is of much the same opinion. She writes: "The eagle is so fast decreasing in numbers as to be soon extinct. Alaska and some states give a bounty on dead birds and in no state has he proper protection....Why call him the Emblem of Freedom when he is not legally entitled to 'life, liberty and the pursuit of happiness'? Why honor him by a place on National seals, medals, shields, coins, etc., when we care so little for him that we allow him to be done to death ....for a dollar bill or idle 'sport'?"

We find the debate continuing with equal heat and zeal, when we turn from the mighty eagle to the tiny, much-berated English sparrow.

A Massachusetts bird-lover tells us, "I have fed the outdoor birds for four years. Of course, one draws in the undesirable with the desirable, so I have about 75 sparrows at the present time....They pester my kinglets, hairy and downy woodpeckers, juncos, swamp sparrows---all my nice birds--- so much that I am now feeding the kinglets and chickadees upon my window."

So runs the plaint of one bird lover. But that same bird in the eyes of another friend of the birds---a real estate dealer in Pennsylvania---is a more welcome sight. He asks, "Can you give me information on what kind of bird-house I should build for the English sparrow? These birds are resident here the year 'round. I have tried for three years to get them to nest in my yard and have so

far failed....This request may appear irregular, but I hope the irregularity will be offset by my anxiety to accomplish what I started to do....I am determined to have these birds in my yard."

Then, from an Illinois boy scout comes this word: "The scouts....in cooperation with the civic communities here have undertaken the elimination of the English sparrow in our communities because of their increasing numbers and the decreasing number of song-birds....We would be pleased to have all available information."

But the idea of such a campaign against the sparrow makes the proprieter of a Wisconsin lumber company highly indignant. He writes, "I notice an item in the newspapers...describing cruel, not to say barbarous, contraptions for trapping English sparrows. The sparrow is accused of driving wild birds away....I encourage sparrows and wild birds to nest near the house....Of course, the blue jay and the grackle sometimes behave in a belligerent manner, but I never saw a sparrow drive a smaller bird away....Permit me to say that savage pursuit of this harmless, cheerful, little bird is anything but good ethics to teach our young boys."

In defending the sparrow, you notice the Wisconsin lumberman was a bit critical of the blue jay. In California there is an altogether different kind of jay called blue jay. A Californian raps this bird pretty severely. He says, "We....would suggest that if the Park Service intends to have any bird-life in Yosemite Valley outside of blue jays, they ought to do something to exterminate the blue jays in that particular spot. I have heard a number of people remark that the blue jays are practically the only bird-life in Yosemite Valley."

But we always find somebody ready to take the other side of an argument about birds. Another Californian writes, "If the idea is to protect birds, it would be more practical to trap hunters. (A gun club) went out....and shot 1,500 blue jays, then celebrated this heroic deed by a large dinner with 1,500 jays piled up in front of the club. Nice work for full-grown men, wasn't it?"

Well, there you've heard folks brand hawks and owls, and sparrows, and eagles and blue jays as undesirables---as public enemies. You've heard other folks defend each one of those birds---even down to the lowly English sparrow. If you had to decide which side made the best argument, how would you vote?

While you're making your decision, I'm going to tell you how McAtee stands on these age-old arguments. McAtee has heard the arguments over and over for years and years. Many a time, he has been called on to take a hand in a situation where some particular bird got a little troublesome. He says:

I can think of scarcely a bird that may not be troublesome, or do some damage, under certain conditions. Neither can I think of many birds that are entirely bad. So, I never condemn any one class of birds as a whole. If the jays, or sparrows, or hawks destroy property in some particular neighborhood, by all means take such steps as are legal to control them. Be sure, however, that you are not violating either Federal or State laws when you take steps for such control, and don't make war on an entire family of birds because of the faults of a few individual members."

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ANNOUNCEMENT: And so we conclude another visit with Uncle Sam's Naturalists. The United States Biological Survey brings you another of these nature talks at this same time two weeks from today.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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RECEIVED APR 1933 U.S. Department of Agriculture

WITH UNCLE SAM'S NATURALISTS RELEASE Friday, April 7, 1933

FOR BROADCAST USE ONLY

Reading Time: 10 Minutes.

ANNOUNCEMENT: Uncle Sam's Naturalists are here again with a story about the Great Out-of-Doors. The naturalists find the bird and animal kingdom has its cycles and depressions just the same as our world of business and industry. They tell us about some theories on those wild-life cycles as today's story from the United States Biological Survey.

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The historic Hudson's Bay Company has kept records on Canada's wild life--especially the fur animals--for nearly 300 years.

During those 300 years, the fur company officials have seen Canada's game supplies increase and decrease in more or less regular cycles. For a few years, the game increases; fur animals are plentiful. Then comes a slump. Over the next few years, game is scarce. Indians and trappers in the big woods of the North feel the pinch of depression. Those slumps are reflected in the fur catch and occur at intervals averaging around 10 years.

Naturalists and trappers find evidence of about the same kind of wild-life cycles in the United States as in Canada.

Folks have tried to explain these wild-life cycles in about as many ways as they have tried to explain business cycles and depressions.

Some say wild life comes and goes because of changes in the food supply.

Others link up increases and decreases in the numbers of certain game brids and animals with the number of coyotes, and wolves, and mountain lions, and other predatory animals and birds.

Others trace the cycles to spells of overhunting.

We hear a variety of theories. A few folks think the decrease in the numbers of certain birds in one year or over several years may be due to heavy rains during nesting time. Some suggest that wild-life cycles may be due to sun spots. They think these influence the amount of sunshine available for vitamin production in the leaves, and grass, and other vegetation and thus affect the vitality of the birds and animals.

Well, you can easily see how some of those theories may help explain the rise and fall in the wild-life population. But. Dr. J.E. Shillinger, of the

United States Biological Survey, thinks we may have under-rated one important cause of wild-life cycles; namely, disease.

Veteran woodsmen may tell you that wild animals and birds never die of disease in their natural environment. They may say birds and animals catch disease only when kept in confinement. Wild birds and animals are more likely to suffer from disease when you keep them penned up than when they run loose in nature. But, the naturalists do find disease among wild ducks, and quail, and pheasants, and foxes, and muskrats, and deer just as you do among domestic poultry and livestock. What's more, they are beginning to see how disease may be an important factor in the wild-life cycles we have been talking about.

In fact, Doctor Shillinger and others suspect that disease has a great deal to do with the ebb and flow of the rabbit and grouse population in Minnesota, and Wisconsin, and other northern states. In this region the rabbit and grouse population took a tail-spin during the years of 1924, '25, and '26, but since '26, the number of rabbits and grouse has been climbing and climbing. Right now, the naturalists figure rabbits are scampering around over parts of Minnesota, and Wisconsin, and Michigan at the rate of about 300 to the square mile. That's certainly a mess of rabbits. But in a year or two the rabbit and grouse population is likely to hit another low point. The naturalists say this because during the time conditions have been studied in this country the cycle of rabbit and grouse population seems to jibe pretty well with the Hudson's Bay Company's records of 10-year wild-life cycles in Canada.

Dr. Shillinger, Dr. R. G. Green at the University of Minnesota, and officials of the Minnesota State Department of Conservation, have been conducting a study of disease- not only diseases of rabbits and grouse, but also of other wild life of the northern forests.

So far, Shillinger and the Minnesota men have singled out three infectious diseases that might sweep through the forests and kill off game in big numbers.

The most common of those diseases seems to be tularemia. Tularemia is the same thing as the rabbit fever you've heard so much about in the last few years. But tularemia isn't a disease of rabbits alone. During the past year, the wild-life men discovered tularemia among ruffed and sharp-tailed grouse. They aren't ready to say tularemia occurs among birds in epizootic form--or that it is the cause of the cycles we find in bird life. But they do know that tularemia is a common infectious disease among rabbits.

Other newly discovered diseases are a filterable virus disease found in owls and a pseudo-tuberculosis found in beavers and muskrats and possibly affecting a wide variety of other wild animals.

Now, if those three diseases are in any way responsible for those cycles, why does the wild-life come and go in 10-year periods? After tularemia, or some other diseases, breaks loose in the great northern woods, why doesn't it run on and on until it kills off all wild life? What stops the disease after it once gets a start?

Shillinger and the others studying this problem don't know. But they have a theory. They see at least part of an explanation for wild life cycles in some facts we've long noted about domestic livestock. If you jam a lot of cattle together in a pen--and disease breaks out among the cattle--the outbreak is likely to be much worse than if you had the same number of cattle scattered out over a big range. Likewise, if you have 300 cottontails on a square mile of land, an outbreak of tularemia is likely to be much worse than if you had only a hundred rabbits on the same land. The denser the wild-life population, the more extensive the loss from disease.

Applying that theory to the cycles of rabbit and grouse population we might explain the cycles something like this: Ever since that low point back in 1926, the rabbit and grouse population of the northern woods has been gradually increasing. This year, rabbits, in particular, are numerous. If the disease men's theory of cycles is correct, we may find disease running riot for the next year or so and game in the north country of the midwest dying off like flies. In a few years the rabbit and grouse population may again be at a low point. The disease may die down like a forest fire after it gets out of a dense woods into a field of scattered brush. The disease may smolder along for several years until the woods are again full of wild-life. Then, we may see another disease epizootic --and another falling off in the supply of game, And so one cycle may follow another.

But, if those wild-life cycles are all a part of Nature's course, why should we worry about them? Why should we try to find out how much disease has to do with those cycles, and how disease spreads, and how we can control disease? Principally, because a knowledge of wild-life diseases plays an important part in the work of our State and Federal game officials.

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ANNOUNCEMENT: And that's today's story from Uncle Sam's Naturalists about the wild life cycles and depressions in Nature. We will bring you another story of the Great Out-of-Doors from the United States Biological Survey at this same time two weeks from today.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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WITH UNCLE SAM'S NATURALISTS Friday, April 21, 1933.

(FOR BROADCAST USE ONLY)

Speaking Time: 10 Minutes.

OPENING ANNOUNCEMENT: And now for our visit with Uncle Sam's Naturalists. Today, we're going into the woods to look in on the work of that big army of unemployed men we sent out to improve our forest land. We go with the United States Forest Service as our guide.

--ooOOoo--

Our big conservation army isn't having trouble finding work.

The foresters already have enough work mapped out on our some 161 million acres of national forest land alone to keep those men busy indefinitely. So, the problem isn't to find or make jobs in the woods but simply to decide what particular work they will do first.

I learn from the men in the United States Forest Service that one of the most pressing forestry problems is to protect our woods from fire.

By fire protection, the foresters mean a great deal more than just patrol work and actual fire-fighting during the fire season. They mean building fire breaks, and telephone lines, and lookout stations, and fire protection roads and trails, and emergency landing fields.

Now, of course, a great many of our forest areas are pretty well supplied with natural fire breaks. They have roads, and streams, and rocky ridges to help to keep the fire from spreading. But, in certain other sections, where fire can sweep along for miles and miles with nothing to check or stop it, the foresters have to clear out strips through the forest to make artificial breaks. Sometimes the foresters build those fire breaks along a ridge or along the base of a hill. The width of the cleared strip usually ranges from about 10 to 100 feet, depending on the kind of trees and underbrush, and the "lay" of the land. If a fire isn't burning too hard, that little gap of 10 to a hundred feet will often stop the fire entirely. But the foresters don't count on those fire breaks for complete protection. They depend on the fire breaks more as a line of defense and as a place to start back-firing during a big fire. Sometimes, too, the fire breaks as a kind of safety zone for telephone lines.

Clearing away the trees and brush for one of those fire breaks is a big job in itself and gives work to a lot of men. And after you once clean out a strip, you have to burn it off during the winter, or perhaps plow it every year or so, to keep it clean.

[illegible] Friday, April 21, [illegible]

(FOR BROADCAST USE ONLY)

Broadcast Time: 10 Minutes.

[illegible] AUDITORIUM [illegible]: And now for our visit with Uncle Sam [illegible] morning. [illegible] we're going to look in on the work of that big [illegible] of Uncle Sam's [illegible] Department. We're [illegible] the [illegible] Station [illegible].

[illegible]

[illegible] production army is [illegible].

[illegible] Air Corps [illegible] stone to [illegible] [illegible] in [illegible] [illegible].

[illegible] in the United States [illegible] line is to [illegible].

[illegible], the foreigners [illegible] during the [illegible] fire [illegible], and Lookout [illegible] [illegible] Chief.

[illegible] They have ready, [illegible] When [illegible] [illegible] "lay" [illegible] [illegible] the [illegible] line [illegible] the foreigners [illegible] and on the fire [illegible] and an [illegible] telephone [illegible].

[illegible] the trees and brush for [illegible] breaks in a [illegible] gives work so a lot [illegible]. [illegible] fire, you have to burn it off during [illegible], you can burn it every [illegible] so, [illegible].

Along with the fire breaks, we have to have trails for men and horses, and also truck trails, to get men and fire-fighting supplies to the scene of a fire. We already have a great many such roads and trails. But we still have thousands and thousands of acres of almost unbroken wilderness. When fire breaks out in one of those sections, the fire-fighting crews may spend hours and hours -- or even several days -- pushing through brush, and over rocks and ridges. In that time, the fire burns over miles and miles of forest land.

Then of course, we now use 'planes in the forest for special scout duty after heavy thunderstorms and at times when the ground lookouts are unable to see any great distance because of smoke or fog. We also use 'planes to check on the direction and rate of spread of big fires -- and to get special officers, and provisions, and fire-fighting equipment to out-of-the-way places. So, we have to clear out places in the woods as emergency landing fields.

Another important link in our forest-fire-fighting system is the network of look-out towers. From those look-out towers, the look-outs keep a steady watch during the fire season for the first tell-tale signs of smoke.

We already have hundreds of those look-out towers scattered over the national forests. But we still have hundreds of "blind spots" in the woods--places out of sight of any of the look-outs. A fire might burn in one of those places for hours and hours before anybody discovered it. The foresters have those "blind spots" mapped and places picked to build additional look-out stations. In flat country and in high plateau country -- especially in the East -- they usually put up high metal towers that look much like the old-fashioned windmill with a little cabin, or observation tower, on the top. But in the Western forests where you find chains of mountain peaks sticking high in the air, the towers aren't necessary; the standard look-out station in the West is a small one-story cabin, topped with a little glass-inclosed observation room.

Then, of course, to tie together the look-out towers, and other links in the fire-fighting system, we have thousands of miles of telephone lines. But we still need many more miles of lines to complete the system.

I've told you briefly of the plans to protect our woods from fire.

But fire isn't the only enemy of our forests. We also have a big fight to protect our forests from insects and disease.

The forestry men tell me one of the worst of the insect pests is the western pine bark beetle. In years when the beetles are especially bad, pines in parts of Idaho, and Montana, and Wyoming, and other Western regions die off by the hundreds as though a big fire had swept through the forest.

When the beetles break loose in epidemic form, the foresters send out crews to spot the beetle-infested trees. The crews may cut the trees and strip off the beetle-infested bark or cut the trees and expose the bark to the rays of the sun, or submerge the infested logs in water. Sometimes they go after the beetles with a spray of fuel oil, spraying the tree and then setting fire to the oil to cook the beetles inside. No matter what method of attack the foresters decide on, they have to have big crews of men to do the work.

The gypsy moth, a pest of forest trees in the New England states, is another "public enemy" against which our scientists are carrying on a long-time fight.

Turning from insects to diseases, we find one of the most important of the forest diseases is the well-known white pine blister rust.

The white pine blister rust is a destructive disease of white pines doing a lot of damage throughout the northeastern part of the country and the Lake States and the Northwest. Let the rust run unchecked, and foresters say it would kill out our 420 million dollars' worth of white pine forests just as chestnut blight wiped out the chestnut.

As you may know, blister rust never spreads directly from one pine tree to another. The rust goes from a pine to a wild currant or gooseberry bush, and from the wild currant or gooseberry back to a pine. Take out the wild currants and gooseberries within about 900 feet of the pine trees, and you leave the rust stranded. The rust will go ahead and finish up a tree where it already has a foothold, but it can't spread from that tree to other trees.

So, for a number of years, we've been carrying on a campaign in white pine regions to clear out all wild currants and gooseberries. Every spring, we send out men in small crews to pull out the bushes by hand or dig them out with a grubber. Already, we've cleaned up more than eight million acres of land in New York and New England alone. But we still have other millions of acres to cover and much land to be gone over a second or third time.

Besides those millions of acres of forest land which we are trying to protect from fire, and disease, and insects, we have other big areas which are already almost completely destroyed. We would have to wait years and years for Nature to reforest those areas by her own methods. So, we are giving Nature a little help by planting those areas with nursery stock.

So, you see, when the unemployed men get into the woods, they don't have trouble finding something to do. The work -- and lots of it -- lies waiting.

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ANNOUNCEMENT: And that concludes today's visit with Uncle Sam's Naturalists. Today's Naturalist talk came to you through the cooperation of the United States Forest Service. We will bring you another in the Naturalist series at this same time two weeks from today.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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WITH UNCLE SAM'S NATURALISTS RELEASE: Friday, May 5, 1933

FOR BROADCAST USE ONLY

ANNOUNCEMENT: Now is our time with Uncle Sam's Naturalists of the United States Department of Agriculture. Today we have a few suggestions about the woods from one of our foresters.

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"Come forth into the light of things,
Let nature be your teacher."-----

So says the poet, and so says Extension Forester W.R. Mattoon of the United States Forest Service. Only Mr. Mattoon says it in prose, and with particular reference to the trees.

Of course, some of us spend a good bit of time in the woods all the year around. But I guess more folks get the urge to get out into the woods at this time of the year than most any other. Even people who are content to stick around the house or stay in town at other times, seem to be drawn toward the woodland in the spring. Many of us don't get out for a good long stay in the forest until well along into summer. In the spring, however, we get that hankering to at least get out and explore around a little in whatever wood we can reach.

And Mr. Mattoon suggests that those who have little knowledge of woodcraft might do well to get better acquainted with the ways of the woods. In fact, he says it is essential that our people know the importance and value of many forest tracts of small size that make up our farm woodlands.

It is certainly a fascinating subject once you get into it. Folks who are used to just drinking in the beauties of Nature without much attention to the details, might start by getting acquainted with the different kinds of trees. Learn to distinguish the different kinds of trees by some of their well-marked characteristics of leaf, and bark, and fruit, and seed, and buds and twig arrangement.

Of course, everybody probably knows some of the trees in their locality, but you will be surprised how many you pass up or don't really know. I know I was.

Now that spring is coming up this way and the buds are bursting, don't forget the flowers of the forest trees. As Mr. Mattoon points out to me, the flowers of our trees form a clock dial for the advancing year. So, as they bloom in succession, note the blossoms of the willow, the maple, the elm, and

the cottonwood, until the last flower blooms in June, and seed are on the wing. Or maybe you don't have those trees in your woods? What trees do you have in your neighborhood? I'll venture to say there are a lot of you who have been enjoying trips through the woods for years, who don't really know the names of all the common kinds of trees. Test yourself on this.

And while you are getting acquainted with the different trees, you will probably notice that certain trees prefer certain localities. As you know, you find the willow by the stream, the yellow or tulip poplar in the valley, the red oak on higher ground. One kind of tree needs a lot of moisture while another will grow in a drier situation.

As you have probably noticed certain trees "hobnob" together because they have similar needs in the way of soil, and moisture, and light and the like. You soon learn to group your trees as belonging to certain types. There are certain trees you find associated together on the ridges. Other groups you notice on the slopes. Others you find hobnobbing on bottom-land. Others seem to prefer the swamps.

What is your favorite woods? Is it the coniferous forest type? If so, what kind of cone-bearing trees do you find in it? Or maybe it is the pure hardwood type. Or maybe a mixed hardwood and conifer type. Did you ever stop to figure why that woods is the kind it is?

And did you ever try to figure how some of the trees in the woods got where they are? You know forests have been traveling about long before the famous Birnam wood came to Dunsinane. Some trees travel by wind. That is, the seed are scattered by the wind. And you have probably noticed a good many of those ingenious contrivances with which some of the seed are equipped for getting about.

Some trees travel by animal. For instance, squirrels play an important part in spreading the seed of certain trees. Hickories, walnuts, butternuts, oaks, honeylocust, persimmons, and beeches are among the trees spread by animals. Birds also carry such tree seed as red cedar and cherry from place to place. While such trees as cypress, tupelo gum, cottonwood, willows, maples, and a number of others are spread by water. Sometimes when you see a certain kind of tree growing along a stream or a fence-row it is pretty easy to figure how it got there.

When you go into the cool shade of the woods, note the forest floor too. Note the undergrowth of young trees and shrubs and ferns and moss, and the litter of fallen leaves. Take your jackknife or a stick and dig right down under that cover into the mold of many years of fallen leaves. There you will find the answer to Villon's question "Where are the snows of yesteryear?"

When rain falls or snow melts under the shadow of the forest it sinks into the spongy earth. The forest has soaked up the rain and melted snow like a sponge. Find a spring, and you will see where the stored water is seeping out to feed the streams. The rainfall and snowfall that has been held back in the hidden reservoir of the forest has been transformed into a steady supply of water for the pasture, and the farm, and the mill, and the city.

Go out into the open and dig into the soil of an unwooded slope and notice the difference between that and what you found in the woods soil. Chances are you will find the soil on that unwooded slope dry and hard. Of course, you know what has happened. When the rain fell or the snow melted on that open hillside, there was nothing to hold it back. It just rushes down hill.

Maybe if you look around on the open hillside, you may find places where the soil, with no roots to bind it, has been washed away by the rain. If there are any steep slopes in the neighborhood, you may find deep gullies dug into the ground. Trace where that soil goes that is washed down the slope.

When you have noted those facts about the trees, the soil, and the stream you begin to see the relation which the forests of our country bear to the well-being of our land. In a little strip of woodland and neighboring cleared land, you may have an example in miniature of soil protection and good streams, or erosion and flood damage, and get a clearer understanding of the larger meaning of this Nation's forests to farm land and industry and commerce.

Or if you are of an investigative turn of mind, and want to find out about the past life in the woods, you may be able to detect in some stump or the end of the saw-log much of the story of the past of that woods. In the varying thicknesses of the annual rings in written the fat and thin years of the tree. In those rings, you may also find evidences of fires and insect attacks which have occurred in the life of that tree. By counting the growth rings, from the bark back to the scar left by the fire in some cases you may be able to tell about what year that fire happened.

In fact, whether you are a novice or a woodsman of long experience, there is a lot that the trees can tell you. As for myself,

"I will up and get me away where the hawk is wheeling
Lone and high,
And the slow clouds go by.
I will get me away to the waters that glass
The clouds as they pass.
I will get me away to the woods."

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ANNOUNCEMENT: You have just heard a few suggestions on getting better acquainted with the woods. This program has come to you from the United States Department of Agriculture. Two weeks from today we will again go with Uncle Sam's Naturalists into fresh fields and pastures new.